



# ALGL Overview

18 May 2006

**Dennis Lambrecht**  
**PM-ALGL**

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*Harnessing the Power of Technology for the Warfighter*



## Advanced Lightweight Grenade Launcher (MK47 Weapon System and Ammunition)



**MARK 47 MOD 0 Weapon System**



**MK 285  
Air Bursting**



**Standard  
HV 40MM**



# ALGL Program



## ALGL is a USSOCOM Acquisition Program.

Sponsor:  
USSOCOM PEO-SW

Fielded to:  
USASOC

Fielded to:  
NAVSPECWARCOM



Program Management &  
Life Cycle Sustainment:  
NSWC Crane Division



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## ALGL TOPMAP

### Existing Systems

### Emerging Systems

### Objective Systems

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
<b>GRENADE MACHINE GUNS</b>															
<b>MK19</b>															
						<b>MK47 Mod 0, Standard Ammunition</b>									
						<b>MK285 Air Bursting Ammo</b>									
										<b>MK47 Mod 1, Enhanced Ammo</b>					



- **MK47 Joint Fielding Status**
  - **May04 First Unit Equipped (FUE)**
  - **MK47 Weapon Systems in Production**
    - **FY06 Deliveries**  
**fill 59% of**  
**Basis of Issue Plan**





- **ALGL Overview**

- **MK47 Weapon System**

- NATO Nominated Weapon
    - Heavy Thermal Weapons Sight (HTWS) Capability
    - Improved Crew Served Weapons Mount (ICSWM) Foreign Comparative Test Project



- **MK285 Air Bursting Ammunition**



- **ALGL Subprograms:**
  - **MK285 Air Bursting 40MM Ammunition**
  - **MK47 NATO Nominated Weapon Support**
    - 3 MK47s to European Regional Test Center
    - 3 MK47s to North American Regional Test Center





- **MK47 with AN/PAS-13 HTWS**



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- **Foreign Comparative Test (FCT)**
  - **Improved Crew Served Weapons Mount (ICSWM) Project**
    - **FY06 new start**
    - **ICSWM – “soft mount” for MK47 machine gun**
    - **Full and Open Competition**
    - **Source Selection process goal 4QFY06**

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**SIGHT: DESIGNED IN CANADA,  
IMPROVED AND MANUFACTURED  
BY RAYTHEON IN THE U.S.**

**MK47 WEAPON SYSTEM:  
DESIGNED AND INTEGRATED BY  
GENERAL DYNAMICS ARMAMENT  
AND TECHNICAL PRODUCTS  
(GDATP) IN THE U.S.**



**FUZE: DESIGNED BY  
BOFORS IN SWEDEN,  
S&A: MANUFACTURED BY  
MTH IN SWITZERLAND**

**40 MM PROJECTILE:  
DESIGNED BY  
DIEHL IN GERMANY**

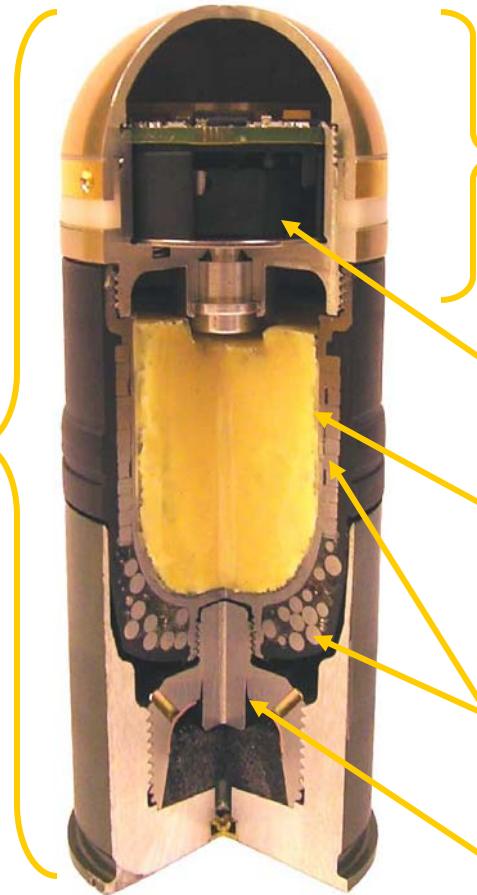
**40 MM CARTRIDGE CASE:  
DESIGNED BY  
NICO IN GERMANY**

**MK285 AMMUNITION: INTEGRATED BY  
NAMMO IN NORWAY**

## Air-bursting ammunition for ALGL



MARK 285 MOD 0  
CARTRIDGE



PROGRAMMABLE FUZE  
MARK 438 MOD 0

SAFETY AND ARMING  
DEVICE MARK 91 MOD 0

INSENSITIVE MUNITIONS  
EXPLOSIVE FILL

PRE-FORMED FRAGMENTS  
INCREASE LETHALITY

LOW DISPERSION DESIGN



# ALGL Program



- **MK438 fuze**
  - **Fuze set in chamber as hammer falls**
  - **Mechanical Safe & Arming (S&A)**
    - 2 independent safety locks, setback and spin
  - **MERCMECH improvements**
    - Improved S&A support
    - Redundant circuitry
    - No on-board battery required







# ALGL Program



- **MK285 function modes:**
  - **Point Detonating**
    - function on impact, 18 - 40M S&A arming distance
  - **Airburst**
    - Fire control sends power and time information
    - set range 100-1800 meters
    - Safe Separation Distance 58 meters
  - **Self Destruct**
    - functions approximately 18 seconds after launch





# ALGL Program



INSENSITIVE MUNITIONS (IM) TEST RESULTS/ASSESSMENTS						
	FCO	SCO	BI	FI	SD	SCJ
<b>MK 285 Cartridge</b>	Type IV Deflagration	Type IV Deflagration	Type VI No Reaction	Type VI No Reaction	Type III Pass	(Fail)

- **Fast Cook Off (FCO)**
- **Slow Cook Off (SCO)**
- **Bullet Impact (BI)**
- **Fragment Impact (FI)**
- **Sympathetic Detonation (SD)**
- **Shaped Charge Jet (SCJ)**

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## IM TESTING

- **IM tests passed:**
  - **Bullet Impact (BI)**
    - Type VI No Reaction = Pass
  - **Fragment Impact (FI)**
    - Type VI No Reaction = Pass
  - **Sympathetic Detonation (SD)**
    - Type III Reaction = Pass





# ALGL Program



## IM TESTING (continued)

- **IM Tests; not passed, waiver required:**
  - **Fast Cook Off (FCO)**
    - Type IV Deflagration reaction, fragments projected
    - Type V Burning reaction would pass
  - **Slow Cook Off (SCO)**
    - Type IV Deflagration reaction, fragments projected
    - Type V Burning reaction would pass







# ALGL Program



## IM TESTING (continued)

- **IM Tests; failed, by analysis:**
  - **Shaped Charge Jet (SCJ)**
    - (Fail) – determined by analysis





# ALGL Program



## IM WAY AHEAD

- **IM Waiver & Strategic Plan**
  - **FY07 Strategic Plan**
    - **MK285 IM Waiver**
    - **MK285 on High Priority List**
    - **Funded Plan of Action & Milestones (POA&M) for IM Mitigation Effort**

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## IM WAY AHEAD (continued)

- **IM Mitigation Efforts:**
  - **MK285 POA&M, FY07-08**
  - **Test PA120 Container Modifications**
    - **Vent Overpressure**
    - **Reinforcement**
  - **Goal is Type V Burning Reaction for:**
    - **Fast Cook Off (FCO)**
    - **Slow Cook Off (SCO)**





# ALGL Program



- **MK285 Airburst Ammunition Testing**
  - **NAMMO Internal Qualification Tests**
  - **Contractor System Integration Testing**
  - **Government Qualification Test at NAMMO**
  - **Government Qualification Testing in US**
- **First Unit Equipped (FUE) plan 4QFY07**





- **MK285 Ammunition**



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- **Objective 40mm Airburst Family:**
  - **MK285 Airburst**
    - Pre-fragmented Programmable High Explosive PPHE
  - **M430 HEDP PIP**
    - ALGL Programmable High Explosive Dual Purpose
    - After-armor Incendiary Effect
  - **Programmable Training Round**
    - Visible Airburst Signature







- **MK47 Weapon System:**
  - **Ground or Vehicle Mounted**
  - **Automatic 40mm Grenade Launcher**
  - **Day/night Fire Control**
- **Uses Standard 40mm Ammunition**
- **Objective MK285 Airburst Ammunition**
  - **Effective Against Targets in Defilade**





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## Advanced Lightweight Grenade Launcher



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# Contact Information



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